

Transfer of Lake Ontario Sea Lampreys for Sterile Male Release

| HACCP Step 1 - Activity Description | |
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| Facility: Marquette Biological Station | Site: Great Lakes |
| Project Coordinator: Michael Twohey | Project Description: Sea Lamprey Control - SMRT |
| Site Manager: | |
| Address: 1924 Industrial Pkwy Marquette, MI 49855 | |
| Phone: 906.226.1226 | |

| Project Description (Who, What, Where, When, How & Why) |
|--|
| <p>The U.S. Fish and Wildlife Service, Marquette Biological Station is the U.S. control agent for the Great Lakes Fishery Commission's sea lamprey control program in the Great Lakes. Sea lampreys are captured during the spring spawning migration in Great Lakes tributaries, and the males are used in a sterile male release technique to reduce reproductive success. Transfer of males from Lake Ontario into the Upper Great Lakes is of concern due to the presence of emergency and restricted diseases of the Great Lakes model program found in Lake Ontario. Males captured from Lake Ontario are held in tanks until results of disease screening are obtained. If free of diseases of concern, the lampreys are transported to a sterilization facility in Millersburg, MI, sterilized, and then released into the St. Marys river. The sterilized males compete for mates with resident males and reduce reproduction by the proportion that they are present in the population. Sexually mature males that are used in the program have ended their parasitic phase and will die soon after spawning. Lampreys that were screened during 2003 – 2006 have not been found to contain diseases of concern.</p> |

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HACCP Step 2 - Potential Hazard Identification

Vertebrates:

Invertebrates:

Plants:

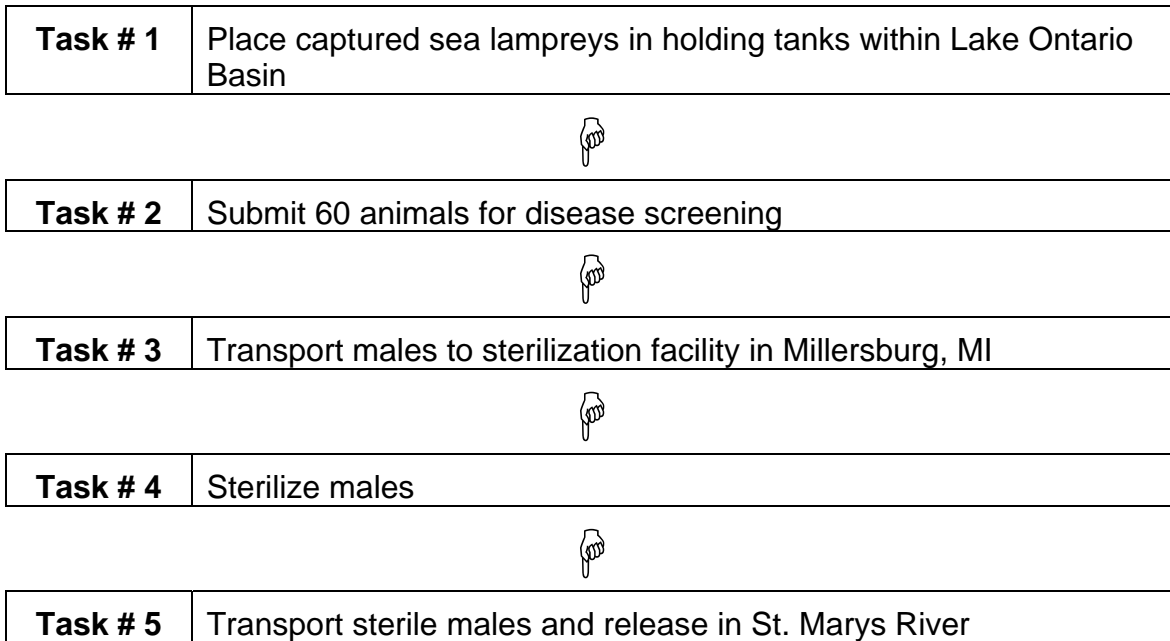
Other Biologics:

Emergency and restricted diseases of the Great Lakes Model Program (see U.S. Fish and Wildlife Service Fish Health Policy (FWM 170, 713 FW 1-4), Suggested Procedures for the Detection and Identification of Certain Finfish and Shellfish Pathogens (AFS/FHS Blue Book), Great Lakes Fish Disease Control Policy and Model Program, U.S. Fish and Wildlife Service National Wild Fish Health Survey Laboratory Manual)

Others:

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HACCP Step 3 - Flow Diagram



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HACCP Step 4 - Hazard Analysis

| Task | Hazard | Probable? | Justification | Control Measures | CCP? |
|--|--|-----------|---|--|------|
| Place captured sea lampreys in holding tanks within Lake Ontario Basin | Other Biologic: emergency and restricted diseases of the Great Lakes Model Program | No | Heterosporis and VHS have been found in Lake Ontario, though not in lampreys. Other diseases of concern are possible. | Hold lampreys in disease free water source within Lake Ontario basin until results of disease screening are obtained. | Yes |
| Submit 60 animals for disease screening | Other Biologic: emergency and restricted diseases of the Great Lakes Model Program | No | Heterosporis and VHS have been found in Lake Ontario, though not in lampreys. Other diseases of concern are possible. | Submit 60 lampreys for disease screening. Hold animals until results are obtained and representative of Fish Health Committee clears animals for transfer. | Yes |
| Transport males to sterilization facility in Millersburg, MI | Other Biologic: emergency and restricted diseases of the Great Lakes Model Program | No | Animals have been tested and are free of diseases of concern | | No |
| Sterilize males | Other Biologic: emergency and restricted diseases of the Great Lakes Model Program | No | Animals have been tested and are free of diseases of concern | | No |
| Transport sterile males and release | Other Biologic: emergency and restricted diseases of | No | Animals have been tested and are free | | No |

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| | | | | | |
|--------------------|-------------------------------|--|------------------------|--|--|
| in St. Marys River | the Great Lakes Model Program | | of diseases of concern | | |
|--------------------|-------------------------------|--|------------------------|--|--|

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HACCP Step 5 - HACCP Plan

Critical Control Point #1:

Task # 1: Place captured sea lampreys in holding tanks within Lake Ontario Basin

Significant Hazards:

Other Biologic: emergency and restricted diseases of the Great Lakes Model Program

Control Measures:

Animals are held in tanks within the basin until results of disease screening are obtained.

Limits for Control Measures:

Hold until results of disease screening

Monitoring: What?

Fish Health

Monitoring: How?

Water flow, oxygen, temperature, loading, observe fish behavior

Monitoring: Frequency?

daily

Monitoring: Who?

Contractors and Department of Fisheries and Oceans, Canada

Evaluation & Corrective Actions:

Adjust water flow, temperature, oxygen, loading

Supporting Documentation:

Critical Control Point #2:

Task # 2: Submit 60 animals for disease screening

Significant Hazards:

Other Biologic: emergency and restricted diseases of the Great Lakes Model Program

Control Measures:

Submit 60 lampreys for disease screening. Hold animals until results are obtained and representative of Fish Health Committee clears animals for transfer.

Limits for Control Measures:

Monitoring: What?

emergency and restricted diseases of the Great Lakes Model Program

Monitoring: How?

First 60 lampreys captured are sent for analysis

Monitoring: Frequency?

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| | |
|---|--|
| once | |
| Monitoring: Who? Department of Fisheries and Oceans, Canada; Dr. Mohamed Faisal (Michigan State University) | |
| Evaluation & Corrective Actions: Animals are destroyed if diseases of concern are found. | |
| Supporting Documentation: | |
| | |
| | |
| Facility: Marquette Biological Station | Activity: Sea Lamprey Control - SMRT |
| Address: 1924 Industrial Pkwy Marquette, MI 49855 | |
| Signature: | Date: |

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HACCP Checklist:

Sea Lamprey Control - SMRT

Facility Marquette Biological Station

Site Great Lakes

Coordinator Michael Twohey

Manager

Address 1924 Industrial Pkwy, Marquette, MI 49855

- Task # 1: Place captured sea lampreys in holding tanks within Lake Ontario Basin**
CRITICAL CONTROL POINT
 - Hazards were contained
Hazards: Other Biologic: emergency and restricted diseases of the Great Lakes Model Program
 - Control measures were implemented
Control Measures: Animals are held in tanks within the basin until results of disease screening are obtained.
 - Control limits were maintained
Control Limits: Hold until results of disease screening
 - Corrective actions were (performed if necessary)
Corrective Actions: Adjust water flow, temperature, oxygen, loading

- Task # 2: Submit 60 animals for disease screening**
CRITICAL CONTROL POINT
 - Hazards were contained
Hazards: Other Biologic: emergency and restricted diseases of the Great Lakes Model Program
 - Control measures were implemented
Control Measures: Submit 60 lampreys for disease screening. Hold animals until results are obtained and representative of Fish Health Committee clears animals for transfer.
 - Control limits were maintained
Control Limits:
 - Corrective actions were (performed if necessary)

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Corrective Actions: Animals are destroyed if diseases of concern are found.

- Task # 3: Transport males to sterilization facility in Millersburg, MI**
- Task # 4: Sterilize males**
- Task # 5: Transport sterile males and release in St. Marys River**